REMARKS

Claims 1, 5, 6, 8-12, 15, 16, 18, and 21-24 are all of the claims presently pending in the application. Applicants have amended claims 1 and 12 to define the claimed invention more particularly.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Applicants submit that entry of the claim amendments is proper since the amendments to the claims do not raise new issues, which would require further consideration and/or search.

Claims 1, 4-9, 12-14, and 17-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Uchida (U.S. Patent No. 6,897,430). Claims 10, 11, 15, 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Uchida in view of Verdiell.

Applicants respectfully traverse these rejections in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention of exemplary claim 1, provides an optoelectronic hybrid integrated module wherein the optical device and the input/output IC are flip-chip mounted on a surface of the transparent base material substantially aligned with the light coupling means, such that light coupling is performed in a direction other than a direction horizontal with respect to the transparent base material, (e.g., see Application at Figure 1, page 4, line 25 through page 5, line 11, and page 10, lines 12-25). This allows the number of components and processes of the module to be reduced so that mounting costs can be suppressed (e.g., see

Application at page 5, lines 20-23).

II. THE PRIOR ART REFERENCES

A. The Uchida Reference

The Examiner alleges that the claimed invention of claims 1, 4-9, 12-14, and 17-23 would have been obvious in view of Uchida. Applicants submit, however, that, Uchida does not teach or suggest each and every feature of the claimed invention.

That is, Uchida does not teach or suggest, "*a transparent base material having electric wiring and light permeability, the transparent base material including a light coupling means at a position substantially facing the optical device, wherein the optical device and the input/output IC are flip-chip mounted on a surface of the transparent base material substantially aligned with the light coupling means, such that light coupling is performed in a direction other than a direction horizontal with respect to said transparent base material*", as recited in exemplary claim 1, and similarly recited in exemplary claim 12.

The Examiner alleges that Uchida teaches transparent base material including a light coupling means. The Examiner attempts to rely on Figure 30 of Uchida to support his allegation. Uchida, however, does not support the above allegation.

The Examiner attempts to analogize the bump 4104 (see Uchida at column 26, line 32-34) of Uchida to the claimed light-coupling means. Uchida, however, does not teach or suggest that the bump 4104 performs a light-coupling function, as recited in the claimed invention.

The claimed invention recites a light-coupling means, which is means-plus-function limitation in accordance with 35 U.S.C. § 112, sixth paragraph. The analysis of the claimed light-coupling means, in the Office Action dated February 7, 2008, does not comply with the

standards of 35 U.S.C. § 112, sixth paragraph.

Indeed, a means-plus-function limitation (such as the claimed light-coupling means) cannot be met by an element in a reference that performs a different function (or does not specifically perform the claimed function). That is, when analyzing a means-plus-function limitation, the analysis account for the recited function. Accordingly, to anticipate a claim including a means-plus-function limitation, the applied reference must specifically teach the function recited in the claim.

Uchida does not teach or suggest that the bump 4104 performs a light-coupling function. Accordingly, the bump 4104 is not analogous to the claimed light-coupling means.

Thus, Uchida does not teach or suggest a transparent base material having electric wiring and light permeability, the transparent base material including a **light coupling means**.

In rejecting claims 1, 12, and 21-23, the Examiner alleges,

> *"[t]he grounds of rejection reference Fig.3 and 4. A more detailed blown up view of the elements are also shown in Figure 30 which better illustrates the wiring and interaction of each element to each other wherein "the optical device [4109 and 4106] and the input/output IC [4102] are flip-chip mounted on a surface [4105 and 4103] of the transparent base material [4108 and 4107] substantially aligned with the light couple means [4104". Further newly amended limitations wherein the optical device and the IC flip-chip mounted on a surface of the transparent material substantially aligned with the light couple means is also disclosed in Figure 30 to the prior art of Uchida."* (See Response to Arguments at page 6 of Office Action dated February 7, 2008).

The function and role of the optical device 4109 and 4106 of Uchida, however, clearly differs from the optical device recited in claim 1. The optical device of the claimed invention is defined as "*an optical device for converting one of an optical signal into an electrical signal and an electrical signal into an optical signal.*"

In rejecting claims 5-9, 13, 14, and 17-20, the Examiner alleges,

> *"Uchida further discloses the transparent base material comprises a transparent plate transmitting a light and the transparent plate (1205, 1206, 1207) comprises a material having high permeability to wavelength of the optical device. The transparent base material comprises a flexible sheet transmitting a light, and the flexible sheet comprises a material having high permeability to a wavelength of the optical device (col. 3, lines 60-62). The optical device is further positioned directly under the light inputting/outputting portion (Fig. 7, '1706 '1780')."* (See Office Action dated February 7, 2008 at page 4).

The light in Uchida travels along the planar direction of its transparent base material. Compared to this, when the optical device acts a light emitting device, the light in the claimed invention passes through the transparent base material in a direction approximately perpendicular to a surface thereof (see the arrow in Figure 1 of the present application). Then, the light further passes through the oncoming coupling means to be outputted, as shown in Figure 1.

Thus, the structure of Uchida is different from that of the claimed invention. That is, in Uchida, the optical signal propagates only in a horizontal direction.

In rejecting claim 9, the Examiner alleges, *"notice in Fig. 4 that the light receiver and the light transmitter also acts as an axis converter wherein the light axis is changed and referenced by the directionality of the arrows (1203, 1208)."*

In Figure 4 of Uchida, however, the upward-pointing arrow in 1201 and the downward-pointing arrow in 1208 both indicate electrical signals. The optical signal propagates only in a horizontal direction. As such, the alleged axis converter of Uchida is different from that of the claimed invention.

Moreover, in rejecting claim 18, the Examiner alleges,

> *"the light inputting/outputting portion comprises a convex lens formed on the transparent base material is shown in Fig. 4. Examiner considers the spherical lens protruding above the substrate (1104) to be the convex lens. And elements 1203 and 1208 optical receiver/transmitter*

are coupling units; coupling light into or out of unit as obviated by the aforementioned terms (1210, 1211)." (See Office Action dated February 7, 2008 at pages 4-5)

There is no description, however, in Uchida that elements 1203 and 1208 in Figure 4 act as a "spherical lens" or a "convex lens" (see Uchida at column 7, lines 35-64). As such, Uchida does not teach or suggest the claimed lens effect.

Therefore, Applicants submit that, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

B. The Verdiell Reference

The Examiner alleges that Verdiell would have been combined with Uchida to teach the claimed invention of claims 10, 11, 15 and 16. Applicants respectfully submit, however, that, even if combined, the alleged combination of references would not teach or suggest every feature of the claimed invention.

That is, neither Verdiell nor Uchida, nor any combination thereof, teaches or suggests "*a transparent base material having electric wiring and light permeability, the transparent base material including a light coupling means at a position substantially facing the optical device, wherein the optical device and the input/output IC are flip-chip mounted on a surface of the transparent base material substantially aligned with the light coupling means*", as recited in exemplary claim 1 and similarly claim 12.

Applicants respectfully submit that, as detailed in section A, above, Uchida does not teach or suggest this limitation. Furthermore, Applicants respectfully submit that Verdiell

does not make up the deficiencies of Uchida.

That is, nowhere does Verdiell teach or suggest a transparent base material having electric wiring and light permeability, the transparent base material including a **light coupling means**. The Examiner does not even allege that Verdiell teaches or suggests this feature.

Thus, Verdiell fails to make up the deficiencies of Uchida.

Therefore, Applicants respectfully submit that, even if combined, the alleged combination of references would not teach or suggest every feature of the claimed invention. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

Applicants concurrently file herewith a Petition for Extension of Time, and corresponding extension of time fee, for a one-month extension of time.

In view of the foregoing, Applicants submit that claims 1, 5, 6, 8-12, 15, 16, 18, and 21-24, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. Applicants respectfully request the Examiner to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, Applicants requests the Examiner to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

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Serial No. 10/511,630 14
Docket No. NE297-PCT (US)

The undersigned authorizes the Commissioner to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: Jun 5, 2008

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I hereby certify that I am filing this paper via facsimile, to Group Art Unit 2883, at (571) 273-8300, on June 5, 2008.

Respectfully Submitted,

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